Study the Threat of Coal Leachates from the Proposed GPT on Cherry Point Aquatic Ecosystems and Nearby Groundwater Aquifers

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As an environmental scientist(MS Environmental Systems) and expert with over 30 years' experience in water and water treatment, I previously commented on my concerns regarding water evaporation on coal piles and the effects of drawing large volumes of water for dust control at the proposed coal dump at Cherry point on diminishing flows of the Nooksack River and nearby aquifers.

Another critical water quality issue is stormwater runoff of leachates from the projected 80 acre coal piles of the GPT project. A study by the Maryland Department of Natural Resources[1] looked at coal leachates and effects on water quality and biota. This report found coal leachate to be low in pH (acidic) and to have high levels of Aluminum, beryllium, and copper among other contaminants. Aluminum levels were 10,000 time levels know to be toxic to marine organisms. Similar values were found for copper, which is highly toxic to marine algae. Beryllium is a carcinogen to marine life.

To treat or remove these contaminants, co-precipitation is one method of removal. Another method is to dilute to non toxic levels. In the case of aluminum, the dilution would have to in the order of 10,000 to one to reach acceptable toxicity levels.

This high toxicity, especially where drainage is into a highly sensitive marine reserve, suggests that a zero discharge of stormwater would be a requirement to insure that no contaminated water would enter the aquatic ecosystems.

Unfortunately this is not possible at Cherry Point. Typical 0 discharge such as is used for coal bed methane production in the Powder River region relies on low precipitation and high evaporation to reduce impounded water in lagoons through evaporation. Western Washington experiences evaporation rates of 22.31"[2] per year, but experiences precipitation rates of 36" per year. The water WILL runoff into the aquatic ecosystem and if insufficiently treated will have a disastrous effect on the aquatic ecosystem.

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[1]Tuttle Jon H. et al, Chemical and Microbiological Factors influencing The Leaching of Trace Metals and Trace Organics from Coal, Chessapeake Bay Research and Monitering. http://web.vims.edu/GreyLit/MDNR/pprp-101?svr=www

[2] From Western Regional Climate Center. Evaporation rates for Bellinghamhttp://www.wrcc.dri.edu/htmlfiles/westevap.final.html

The GPT permit is vague about treatment processes stating lagoons and a 36 acre treatment zone will be used, but it doesn't explain what this treatment is, how it will insure toxins from leachates cannot enter the aquatic ecosystem or nearby groundwater.

Since evaporation is not a possible remediation, other means must be employed to treat the 29 million gallons[3] of runoff per year. The low pH of the leachate is not compatible with wetlands treatment and would require adjustment to be effective.

If after study, the EIS determines that the treatment plan for the GPT is inadequate to treat toxic leachates, it must require a water treatment plant capable of co-precipitating the toxic metals and adjusting pH to insure that water quality of storm water from the site is equal to or better than receiving waters and at risk aquifers. Additionally barriers to insure coal leachates cannot enter aquifers and groundwater must be a requirement. Contamination of the aquatic ecosystem and accompanying aquifers cannot be adequately remediated after they have been contaminated. If the GPT cannot demonstrate the ability to insure that no coal leachate would ever enter these sensitive systems, this alone is reason to deny the permit. Any statement by GPT that if there are problems they will be fixed is inadequate. 100% surety that leachates cannot enter the ecosystems must be a prerequisite.

I will be eagerly monitoring this issue.

[3] Calculated difference between precipitation and evaporation over 80 acres at Cherry point based on WRCC data.